



EIS001816

Community Advisory Board

A Site-Specific Environmental Management Advisory Board

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Nevada Alliance for Defense

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Support Staff
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Kay Planamento

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Ms. Wendy R. Dixon, EIS Program Manager
Yucca Mountain Site Characterization Office
Office of Civilian Radioactive Waste Management
U.S. Department of Energy
P.O. Box 30307, M/S 010
North Las Vegas, NV 89036-0307

Dear Ms. Dixon:

The Nevada Test Site (NTS) Community Advisory Board (CAB) is pleased to provide the following comments on the Draft Environmental Impact Statement (DEIS). Although the NTS CAB is a Department of Energy (DOE) Environmental Management (EM) site specific advisory board (SSAB), the Board believes it is appropriate to comment on DEIS for the following reasons: 1) the deep geologic repository is defined as the disposal facility for defense high level waste and spent nuclear fuel from sites in the nuclear weapons complex; 2) the transportation modes and routes of materials to Yucca Mountain would be the same as those presently and possibly used for defense low-level waste disposal at the NTS; and 3) the groundwater contamination up gradient of Yucca Mountain is analogous to and part of the cumulative impact of past, present, and future federal programs that place radioactive materials in the Nevada environment.

We appreciate this opportunity to comment and we hope that Yucca Mountain will consider these comments in furthering a more complete and cumulative analysis of the deep geologic repository program in Nevada.

Respectfully yours,

Phil Claire
Acting Chairperson
NTS Community Advisory Board

702/633-5300 Ext. 232
Fax: 702/633-5200
E-mail: paicorpnv@aol.com

2437 Losee Road
North Las Vegas, NV 89030-4133



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To: EISR/YM/RWDOE
cc:

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Subject: EIS Comment

February 25, 2000 14:18:01

IP address: 205.188.197.158

The Commentors Name:

---> Phillip Claire

The Commentors Address:

--->2437 Losee Road

--->Las Vegas, Nevada 89030

Email Information:

--->paicorpnv@aol.com

---> Add commentor to the mailing list : on

Contact Information:

---> fax number : 7026335200

---> phone number : 7026335300

---> organization : Community Advisory Board for Nevada Test Programs

---> position : Acting Chair

Comment Text :

-->Cover Letter to Ms. Dixon to follow under separate cover.

Yucca Mountain Draft EIS Comments
NTS Community Advisory Board

Hydrology

1. Section 3.1.4 Hydrology: description of the current system of groundwater flow in the Death Valley region is inadequate at this time because it is based largely on the oversized, data sparse, regional flow model. This model is presently being redone and adjusted to make use of new and ongoing data collection. The understanding of the lower carbonate aquifer hydraulic relationship to overlying volcanic and alluvial units beneath and down gradient of YM is inadequate and necessitates more than a single well test to define the transmissivity of this important, regional unit. The DEIS must do further analysis to determine what information will be collected and analyzed to more completely characterize the hydrologic character and structure of the carbonate aquifer system in the area of the repository footprint.

1.a. There is an inadequate to lack of a description of the hydraulic character and sorptive capability for radionuclides in the alluvial units in Forty Mile Wash based on actual field data. More information is required and must be collected to determine the ability of this part of the natural barrier system to retard radionuclide migration?

1.b. Apparent hydraulic conductivity measurements are not very reliable on a large scale. Until the DOE can perform more hydraulic analysis of units in the vicinity of the repository footprint and down gradient based on multiple well draw down tests with a pumping well and a monitor well, the apparent hydraulic conductivity values are inadequate. Apparent hydraulic conductivity values must be refined and the level of confidence greatly improved so that groundwater travel times in the repository area

can be more reasonably estimated and technically defended.

2. Section 3.1.4 Hydrology (page 3-58): the statement about, "there is no reason to believe that radionuclides from nuclear tests could migrate as far as YM during the active life of the repository". This statement is a belief and not a fact yet. Although there is a sizeable amount of data from the NTS testing program and more being collected simultaneous to YM, the Underground Test Area (UGTA) project has not established with credibility and acceptability that radionuclide contamination would reach the repository during its active life. The Tritium Transport Modeling (1997) by DOE on Pahute Mesa gave a range of arrival times for tritium to reach the Oasis Valley area from the present date to as little as 40 years from now. Possibly with the collection of more data from the data sparse area between YM and Pahute Mesa, the DOE UGTA program will more confidently establish tritium transport times and pathways beneath YM. The Yucca Mountain Project and the Underground Test Area Subproject must cooperate m

3. The existing radionuclide contamination from NTS testing is the closest, real world analogous, field laboratory for study by Yucca Mountain. YM has done an exhaustive search in the literature and in the field to understand the geochemistry of radionuclides in groundwater like that of the NTS region. If the NTS UGTA program were to characterize the near field area (plume) of groundwater contamination around a number of limited sites at Pahute Mesa, YM must evaluate the benefit to the DEIS analysis that a direct exchange of this type of information would provide, and how it would reduce major uncertainties in the cumulative hydrologic analysis section.

3.a. Section 3.1.4.2.2 (page 3-54): Since the State Engineer has denied the water rights permit for the Potable Water Supply (430 ac-ft/yr) well based on it is not in the best interest of the Nevada public to have water used to construct and operate a HLW/SNF repository at YM, YM must define how it will proceed without water and specify the impacts caused by NTS pumping and water hauling.

4. Section 8.3 Cumulative Long Term Impacts (page 8-76): the statement regarding the maximum potential dose from the underground testing inventory is calculated to be 0.2 millirem per year at 20 kilometers. Using the entire estimated source term, and a number of other assumptions about flow path processes for NTS water to migrate to a down gradient receptor for a dose of 0.2 mrem is a possible scenario. The YM DEIS must define how they intend to incorporate new information from the UGTA program about radionuclide migration in groundwater to adjust the cumulative dose at a down gradient receptor.

5. Section 8.3 Cumulative Long Term Impacts (page 8-76): the statement regarding no radioactive contamination attributable to underground tests has been detected in monitoring wells off the Nevada Test Site. There is a saying that goes, "Absence of evidence is not evidence of absence." There is no state of the art monitoring system on or off of the NTS, because the federal government hasn't constructed one based on where contaminants are known to migrate. It is highly likely that underground test contamination is past the NTS boundary because the phenomenon of prompt injection has probably blown the radionuclides past the NTS boundary the same way it probably blew Europium 0.8 miles at the Benham test site with some assistance from colloids. Yucca Mountain must analyze how to establish a joint effort with the UGTA program to establish a state of the art monitoring network in Nye County to monitor both existing and future radionuclide contamination in the groundwater system.

6. Section 8.3 Cumulative Long Term Impacts (page 8-73): This section must include an analysis of the cumulative federal impact of siting a CERCLA type (Superfund) site like YM down gradient of an existing Superfund-qualifying site like the NTS and particularly Pahute Mesa. The NTS Federal Facility Agreement and Consent Order (FFACO, 1996) was negotiated and signed to be a CERCLA-like cleanup agreement for the NTS. Although the NTS does more than qualify to be ranked as a CERCLA site, it was deliberately not put on the national priority list (NPL) CERCLA program. The YM DEIS should do an analysis of this federal action as it pertains to the cumulative impact of the repository program because it too someday will be a CERCLA site. Afterall, YM is basically a very sophisticated and highly engineered form of underground injection of waste. It too will qualify for the NPL in the years 3,000 or 12,000 or when who knows. Based on DOE modeling YM will contaminate at least one square mile of the subsurface and

7. Section 8.3 Cumulative Long Term Impacts (page 8-76): The Federal Facility Agreement and Consent Order (FFACO) requires the DOE-NV to determine the contaminant boundary for underground testing radioactive water at the NTS for a 1000 year period. The contaminant boundary will be based on the 4 mrem/yr standard for groundwater. Yucca Mountain must explain why it prefers the groundwater standard of the EPA over

8 the NRC to set this performance standard for the repository. If the NTS UGTA program
continued has to define groundwater contaminant boundaries at 4 mrem/yr, and the State of Nevada
has to define compliance boundaries at 4 mrem/year, Yucca Mountain should adhere to
the same standard just in case of existing plumes migrate closer to and beneath the
repository footprint. Existing NTS radioactive contamination occurs in the same
hydrologic units as those predicted to be contaminated by leakage from the repository
over time, therefore, the DEIS must analyze for the 4 mrem/yr standard and the reasons
for regul.

9 8. Section 8.3 Cumulative Long Term Impacts (page 8-76): The utilization of computer
modeling to predict groundwater velocities and radionuclide transport is an
approximation that cannot be validated. In fact, many parameters incorporated into
the modeling of all systems eventually contributing to the groundwater source term and
subsequent estimation of dose are sophisticated estimates. If the NTS UGTA program
were to characterize contaminant plumes (near field) from underground testing within
the aquifer, the DEIS must describe how valuable this information would be toward
reducing many of the great uncertainties in the repository modeling program.

10 9. Section 8.3 Cumulative Long Term Impacts (page 8-73): It has reported that Area 25
will eventually come under the administrative control and responsibility of the DOE-YM
program. It has also been reported that the radioactive contamination in parts of
Area 25 particularly to support the nuclear rocket program will come under the
stewardship of the entity responsible for managing Area 25. If the NTS EM program
eventually completes its mission in the next decade and DOE-YM is the designated
steward for Area 25, the DEIS must analyze the DOE-YM requirement to negotiate a
FFACO-like agreement with the State of Nevada to become the legal steward and
subsequent environmental manager for all Area 25 sites.

11 10. Section 8.3 Cumulative Long Term Impacts (page 8-10): Although the DOE estimates
of groundwater basin perennial yield in the vicinity of YM far exceed the anticipated
consumption from operation of the repository and usage in the Amargosa Valley, the
DEIS must do further analysis to assess the cumulative impacts of possible increases
in groundwater consumption in the next 50 years from: the Nevada Science, Technology,
and Museum Corridor; NTS Development Corporation activities in Area 25; Interim
Storage in Area 25; and water importation from Area 25 to augment the Las Vegas Valley
Colorado River supply.

12 11. Section 3.1.4.2.2 (page 3-49): The study of fluid inclusions by Dublyansky
(1998), and the conclusion that they were caused by warm upwelling of water and not
percolation down ward by surface water merits more questions. What relationship does
the ongoing study by Dr. Jean Cline (UNLV) have to Dublyansky's theory? Since YM is
funding the investigation, the DEIS must define how and where the fluid inclusion
study will be utilized as a contribution that is technically verifiable and
reproducible, and that is in full transparent view of and inspection by the public.

Environmental Justice

13 1. Section 3.1.13 (page 3-94) and Sections 8.2.13 & 8.3.2.1.3 (page 8-77): Although
E.O. 12898 defines Environmental Justice with respect to minority populations of color
and income only, the DEIS must go further and analyze the environmental justice or
equity of operating and siting the YM repository in Southern Nevada where there is
already substantial, existing radioactive contamination prior to what Yucca Mountain
may bring to the region. The NTS is predicted to possibly dispose of 7.7 million
cubic feet of low-level waste through 2070. In a cumulative impact analysis of these
two major federal programs, YM appears to unfairly burden and stigmatize the Southern
Nevada region with additional radioactive source term material compared to other waste
disposal sites. For the year 2050 it is recommended that the DEIS analyze the
estimated cumulative number of curies and nuclear waste volumes in Southern Nevada
combined from all federal programs and discuss a broader concept of environmental
justice.

14 2. Given the estimated total number of curies in Southern Nevada from federal programs
in the year 2050 as requested above, this amount of radioactive source term material
unfairly burdens the Western Shoshone, Southern Paiute, and other native peoples with
an additional, socio-spiritual burden to the extent that it will require mitigation
(treatment for depression and religious imbalance) of some type. The DEIS must
analyze and describe how it will mitigate this impact.

Land Ownership

15 continued Section 3.1.1 (page 3-4 to 3-9): The DOE has presently established land-use
agreements with three federal agencies to conduct site characterization work (DOE,
on page 5

15 USAF, and BLM). The NRC through 10 CFR Part 60 will require that DOE either have
 continued ownership or permanent control of the lands for which it is seeking a repository
 license. Does this mean that DOE-YM will have to show title to the land for the
 repository, and won't this measure require an act of Congress that includes formal
 extinguish by Congress, and not the Indian Claims Commission, of the aboriginal title
 of the land to the Western Shoshone under the Ruby Valley Treaty? The DEIS must
 define how the aboriginal title of the land has already been extinguished, and specify
 the documentation of the current owner and title to the land that will eventually lead
 to DOE-YM ownership of the site for license application.

Transportation

16 1. Consideration of Transportation Impacts: The potential impacts in this section
 of the DEIS is considered incomplete. It is recommended that the DEIS specify
 alternatives regarding mode(s) of transport, routing, and consider the effects of
 weather related route modifications, construction delays, etc.

17 2. System Description and Analysis: The DEIS fails to account for the system
 complexities associated with transporting Spent Nuclear Fuel (SNF) on the scale
 proposed by the DEIS. The DEIS must analyze and present in more detail the
 complexities and management of large scale SNF transport to and in Nevada.

18 3. Cumulative Impacts: The DEIS fails to evaluate the cumulative impacts of all
 the radioactive, and hazardous waste material shipments to Yucca Mt. and the NTS as
 required by the National Environmental Policy Act. The NTS is considered a preferred
 alternative for disposal of the nation's low-level and mixed low-level radioactive
 waste and other hazardous material shipments (3 trains/day and 14 trucks/day at the
 intermodal station). The DEIS must do further analysis of the cumulative impacts of
 all potential and ongoing federal, waste disposal and generator programs (LLW, NTS TRU
 to WIPP, and SNF/HLW).

19 4. Waste Form and Waste Acceptance Procedures: The document does not address the
 risks or the procedures necessary to transfer waste from the DOE or generator to the
 carrier. The DEIS must provide further analysis of nuclear waste transfer procedures,
 risks, and modes among the generators, carriers, and receiver.

20 5. Mode Selection: A credible analysis of mode selection involves optimizing costs
 and safety. Although health risks associated with incident-free truck transport are
 greater as compared to rail the consequences of rail transport accidents may be
 greater. Model choice has varying effects on areas through which the waste is
 transported. Present and future population (rural vs. urban) must also be analyzed
 throughout. The DEIS must provide a more robust and complete cost-risk-benefit
 analysis between the modes of truck and rail transport to YM. A more complete
 analysis of the cumulative impact would include the potential to further economic
 development to rural Nevada based on new transportation routes for either and/or both
 modes to YM.

21 6. Cost Effectiveness: Truck transport can be more expensive than rail due to the
 greater number of shipments. The extent of combining rail and truck (intermodal) will
 affect the total cost of the program. The DEIS must define how a cost reduction to
 the YM program can be achieved with rail transport, and the projected cost to
 construct and operate an intermodal facility in Nevada.

22 7. Inconsistent Weighting of Concerns: The Chalk Mountain route is a potential
 route for transporting waste. The DEIS states that the Air Force objects to this
 route and DOE has made this a "non-preferred" alternative in the DEIS. The concerns
 of affected areas of local government, unlike Air Force, have status in the Nuclear
 Waste Policy Act. The Air Force, therefore, should not qualify for special status.
 The Chalk Mountain route could minimize the impact on Nevada rural and urban
 communities. The DEIS must explain how the US Air Force qualifies for special status,
 and how the utilization of the Chalk Mountain route could reduce overall
 transportation cost and risk in Southern Nevada.

23 8. Inaccurate Future Considerations: The DEIS fails to consider the past and
 on-going rapid growth in Nevada and elsewhere. On p. 55 Appendix J the RADTRAN
 analyses is based on 1990 census data. At the intersection of U.S. 95 and the planned
 Las Vegas Beltway, a population of over 20,000 is expected to be domiciled in high
 density housing and supporting mixed-use development. The DEIS must not
 underestimate risks to local communities and Nevada, and it should reevaluate those
 risks and incorporate relevant Lincoln, Nye, and Clark County reports that were
 largely ignored.

24 9. Route Selection: This topic is inadequately addressed which essentially renders the DEIS incomplete. Understanding that Yucca Mountain is the final destination of waste shipments, the various routes that culminate at that location flow back to the several waste-generating sites in many directions. The DEIS appears to assume that truck and rail shipments to all routes possess similar risk characteristics and that the shortest distances traveled result in the least number of risk elements. Accident rates and population density do not appear as concerns and consideration of weather vagaries, construction delays, necessities for emergency re-routing appears absent. The DEIS must present and analyze the transportation routes in full view of the reader in order for more credible and transparent discussion of impacts and mitigation.

25 10. Nevada Routes: The transport model selected by the generating site will determine the route to be taken to the Yucca Repository. Intermodal routes will use different arteries within Nevada as compared to routes taken by all truck shipments. And depends if the originating site is located east or west of Nevada. The DEIS must present a more thorough analysis of transportation routes in Nevada and how those routes could potentially change over the operational life of the repository.

26 11. Emergency Response Issues: The DEIS does not adequately address Emergency Response (ER) Issues. The DEIS must provide a more thorough analysis of ER issues, and specify which locations along the designated routes are going to receive ER training and support.

27 12. Cumulative Impacts: In the year 2010 it is possible that on the roads in Lincoln and especially Nye County, there could be nuclear waste transportation by truck from three sources: 1) Yucca Mountain HLW/SNF; 2) DOE NTS LLW disposal; and 3) DOE NTS Plutonium soil cleanup. The DEIS must analyze for the estimated number of trucks that would move on Nevada roads each day under this possible scenario. The DEIS must analyze for how much ER training and other mitigation effort would be required to adequately manage this much potential nuclear waste transportation in Southern Nevada.

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